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39072 7590 11/14/2008

AT&T Legal Department
Attn: Patent Docketing
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One AT&T Way
Bedminster, NJ 07921

EXAMINER

DAFTUAR, SAKET K

ART UNIT

PAPER NUMBER

2451

DATE MAILED: 11/14/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,051

11/18/2003

Thomas Arnold Anschutz

9400-47 (030312)

4265

TITLE OF INVENTION: SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR MANAGING QUALITY OF SERVICE, SESSION, AUTHENTICATION AND/OR BANDWIDTH ALLOCATION IN A REGIONAL/ACCESS NETWORK (RAN)

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	02/17/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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39072 7590 11/14/2008

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One AT&T Way
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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,051 11/18/2003 Thomas Arnold Anschutz 9400-47 (030312) 4265

TITLE OF INVENTION: SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR MANAGING QUALITY OF SERVICE, SESSION, AUTHENTICATION AND/OR BANDWIDTH ALLOCATION IN A REGIONAL/ACCESS NETWORK (RAN)

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 02/17/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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DAFTUAR, SAKET K 2451 709-226000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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DAFTUAR, SAKET K

ART UNIT

PAPER NUMBER

2451

DATE MAILED: 11/14/2008

AT&T Legal Department
Attn: Patent Docketing
Room 2A-207
One AT&T Way
Bedminster, NJ 07921

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1072 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1072 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/716,051	ANSCHUTZ ET AL.	
	Examiner	Art Unit	
	SAKET K. DAFTUAR	2451	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/04/08.
2. ☒ The allowed claim(s) is/are 1,3,5,7,10,11,13-15,17-20,23-32,34-36,38,40 and 42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

/S. K. D./
Examiner, Art Unit 2451

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Scott Moore (Registration Number 42,011), on October 15th, 2008.

The application has been amended as follows:

Claim 1. (Currently amended) A system for managing Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), RAN comprising a memory configured to store bandwidth and/or QoS settings and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the system comprising:

a first subsystem comprising a first hardware server that is configured to manage QoS, session authentication and/or bandwidth allocation for an access session from the CPN, wherein the access session comprises a connection between the NSP and/or ASP and the CPN; [[and]]

a second subsystem comprising a second hardware server that is configured to independently manage QoS, session authentication and/or bandwidth allocation for a plurality of different application flows from the CPN in response to a message from the RAN indicating available QoS, session authentication, and/or bandwidth allocation settings for one of the plurality of application flows, wherein the plurality of application

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flows respectively comprise a set of data packets associated with respective ones of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN, wherein the QoS, session authentication, and/or bandwidth allocation for at least two of the plurality of application flows are different;

a RAN to ASP service session message generator that is configured to send an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for an access session;

a RAN to NSP service session message generator that is configured to send an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session;

an NSP to RAN service session message generator that is configured to send an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

wherein the first subsystem comprises a RAN to RG access session message generator that is configured to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session;

wherein the RAN to RG access session message generator is further configured to send an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN;

wherein the first subsystem further comprises a RG to RAN access session message generator that is configured to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN;

wherein the second subsystem further comprises a RAN to ASP application flow message generator that is configured to send a Create Application Flow Control

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Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully;

wherein the second subsystem further comprises an ASP to RAN application flow message generator that is configured to send a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow; and

wherein the RAN to ASP application flow message generator is further configured to send a Query Application Flow Control Response message from the RAN to the ASP to indicate to the ASP what resources are assigned to an application flow.

Claim 2. (Canceled)

Claim 3. (Original) A system according to Claim 1 wherein the second subsystem comprises a RAN to RG application flow message generator that is configured to send an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an application flow.

Claim 4. (Canceled)

Claim 5. (Original) A system according to Claim 3 wherein the RAN to RG application flow message generator is further configured to send an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

Claim 6. (Canceled)

Claim 7. (Original) A system according to Claim 5 wherein the second subsystem further comprises a RG to RAN application flow message generator that is configured to send an Update Application Flow Control Request message from the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

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Claim 8. (Canceled)

Claim 9. (Canceled)

Claim 10. (Currently amended) A system according to Claim ~~9~~ 1 wherein the RAN to ASP application flow message generator is further configured to send a Delete Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow has been deleted successfully.

Claim 11. (Currently amended) A system according to Claim ~~8~~ 1 further comprising an ASP to RAN service session message generator that is configured to send an Establish Service Session Request message from the ASP to the RAN to request establishing an access session and to indicate to the RAN a life span of the requested access session.

Claim 12. (Canceled)

Claim 13. (Currently amended) A system according to Claim ~~42~~ 1 wherein the ASP to RAN application flow message generator is further configured to send a Delete Application Flow Control Request message from the ASP to the RAN to request deleting an application flow.

Claim 14. (Currently amended) A system according to Claim ~~42~~ 1 wherein the ASP to RAN application flow message generator is further configured to send a Change Application Flow Control Request message from the ASP to the RAN to request changing an application flow.

Claim 15. (Currently amended) A system according to Claim ~~42~~ 1 wherein the ASP to RAN application flow message generator is further configured to send a Query Application Flow Control Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an application flow.

Claim 16. (Canceled)

Claim 17. (Currently amended) A system according to Claim ~~42~~ 1 wherein the ASP to RAN access session message generator is further configured to send a

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Query Session Bandwidth Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an access session.

Claim 18. (Original) A system according to Claim 17 wherein the RAN to ASP access session message generator is further configured to send a Query Session Bandwidth Response message from the RAN to the ASP to indicate to the ASP what resources are assigned to an access session.

Claim 19. (Currently amended) A system according to Claim ~~8~~ 1 wherein the RAN to ASP service session message generator is further configured to send a Terminate Service Session Response message from the RAN to the ASP to indicate to the ASP whether a session has been terminated successfully.

Claim 20. (Original) A system according to Claim 11 wherein the ASP to RAN service session message generator is further configured to send a Terminate Service Session Request message from the ASP to the RAN to request terminating a session.

Claim 21. (Canceled)

Claim 22. (Canceled)

Claim 23. (Currently amended) A system according to Claim ~~24~~ 1 wherein the NSP to RAN access session message generator is further configured to send a Change Session Bandwidth Request message from the NSP to the RAN to change the QoS and/or bandwidth provided by the RAN for an access session.

Claim 24. (Currently amended) A system according to Claim ~~24~~ 1 wherein the NSP to RAN access session message generator is further configured to send a Query Session Bandwidth Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an access session.

Claim 25. (Currently amended) A system according to Claim ~~24~~ 1 wherein the RAN to NSP service session message generator is further configured to send a Terminate Service Session Response message from the RAN to the NSP to indicate whether a session has been terminated successfully.

Claim 26. (Currently amended) A system according to Claim ~~22~~ 1 wherein the NSP to RAN service session message generator is further configured to send a

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Terminate Service Session Request message from the NSP to RAN to request terminating a session.

Claim 27. (Currently amended) A method for managing Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), RAN comprising a memory configured to store bandwidth and/or QoS settings and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the method comprising:

sending an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an access session, wherein the access session comprises a connection between the NSP and/or ASP and the CPN;

sending an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for at least one of a plurality of different application flows, wherein the plurality of application flows respectively comprise a set of data packets associated with respective ones of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN;

sending an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in a memory of the RAN for the CPN; and

sending an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the memory of RAN for the CPN, wherein the bandwidth and/or QoS settings for at least two of the plurality of application flows are different;

sending an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the RAN for the CPN; and

sending an Update Application Flow Control Request message from the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN;

sending an Update Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for a service session;

sending an Update Establish Service Session Request message from the ASP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

sending an Update Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session;

sending an Update Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

managing QoS and/or bandwidth allocation for an access session from the CPN to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session; and

managing QoS and/or bandwidth allocation for an access session in the CPN to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

Claim 28. (Cancelled)

Claim 29. (Original) A method according to Claim 27 further comprising:

sending an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for a service session; and

sending a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully.

Claim 30. (Original) A method according to Claim 27 further comprising
sending an Establish Service Session Request message from the ASP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session; and

sending a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow.

Claim 31. (Original) A method according to Claim 27 further comprising:
sending an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session;
and

sending an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session.

Claim 32. (Currently amended) A computer program product that is configured to manage Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), RAN comprising a memory configured to store bandwidth and/or QoS settings and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the computer program product comprising a computer usable storage medium having computer-readable program code embodied in the medium, the computer-readable program code comprising:

computer-readable program code that is configured to manage QoS, session authentication and/or bandwidth allocation for an access session from the CPN, wherein

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the access session comprises a connection between the NSP and/or ASP and the CPN;
and

computer-readable program code that this configured to independently manage QoS, session authentication and/or bandwidth allocation for a plurality of different application flows from the CPN in response to a message from the RAN indicating available QoS, session authentication, and/or bandwidth allocation settings for one of the plurality of application flows, wherein the plurality of application flows respectively comprise a set of data packets associated with respective ones of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN, wherein the QoS, session authentication, and/or bandwidth allocation for at least two of the plurality of application flows are different;

computer-readable program code that this configured to send an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for a service session;

computer-readable program code that this configured to send an Establish Service Session Request message from the ASP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

computer-readable program code that this configured to send an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session;

computer-readable program code that this configured to send an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session from the CPN comprises computer-readable program code that this configured to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session;

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wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send an Update Application Flow Control Request message from the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN;

and wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session in the CPN further comprises computer-readable program code that this configured to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN.

Claim 33. (Canceled)

Claim 34. (Original) A computer program product according to Claim 32 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN comprises computer-readable program code that this configured to send an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an application flow.

Claim 35. (Currently amended) A computer program product according to Claim ~~33~~ 32 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session in the CPN further comprises computer-readable program code that this configured to send an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

Claim 36. (Original) A computer program product according to Claim 34 wherein the computer-readable program code that is configured to manage QoS and/or

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bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

Claim 37. (Canceled)

Claim 38. (Cancelled)

Claim 39. (Cancelled)

Claim 40. (Original) A computer program product according to Claim 34 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully.

Claim 41. (Canceled)

Claim 42. (Original) A computer program product according to Claim 40 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow.

Claim 43. (Canceled)

Claim 44. (Canceled)

EXAMINER'S REASON FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

1. (Currently amended) A system for managing Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), RAN comprising a memory configured to store bandwidth and/or QoS settings and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the system comprising:

a memory storing access session information

a first subsystem comprising a first hardware server that is configured to manage QoS, session authentication and/or bandwidth allocation for an access session from the CPN, wherein the access session comprises a connection between the NSP and/or ASP and the CPN; and

a second subsystem comprising a second hardware server that is configured to independently manage QoS, session authentication and/or bandwidth allocation for a plurality of different application flows from the CPN in response to a message from the RAN indicating available QoS, session authentication, and/or bandwidth allocation settings for one of the plurality of application flows, wherein the plurality of application flows respectively comprise a set of data packets associated with respective ones of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN, wherein the QoS, session authentication, and/or bandwidth allocation for at least two of the plurality of application flows are different;

a RAN to ASP service session message generator that is configured to send an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for an access session;

a RAN to NSP service session message generator that is configured to send an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session;

an NSP to RAN service session message generator that is configured to send an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session;

wherein the first subsystem comprises a RAN to RG access session message generator that is configured to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session;

wherein the RAN to RG access session message generator is further configured to send an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN;

wherein the first subsystem further comprises a RG to RAN access session message generator that is configured to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the memory of the RAN for the CPN;

wherein the second subsystem further comprises a RAN to ASP application flow message generator that is configured to send a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully;

wherein the second subsystem further comprises an ASP to RAN application flow message generator that is configured to send a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow; and

wherein the RAN to ASP application flow message generator is further configured to send a Query Application Flow Control Response message from the RAN to the ASP to indicate to the ASP what resources are assigned to an application flow.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONTACT INFORMATION

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAKET K. DAFTUAR whose telephone number is (571)272-8363. The examiner can normally be reached on 8:30am-5:00pm M-W.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. K. D./

Examiner, Art Unit 2451

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2451